

*File 84066
correspondence*

September 19, 1967

VSH-M 1759

Dear Joe:

Subject:

[Redacted]

Task No. 8

STATINTL

In accordance with Contract requirements, enclosed is one copy of
Flight Program Considerations Report.

Regards,

Gus
Gus

vsh
Attachment

STATINTL

[Redacted]

Declass Review by
NIMA/DOD


FLIGHT PROGRAM CONSIDERATIONS REPORT

SPO 27203

STATINTL



I. Introduction

The Equal Magnification GEMS study,  Engineering Report STATINTL
Number 8928, definitely establishes the need for acquiring flight material to be used in the GEMS simulation process. To achieve GEMS or Pseudo GEMS Viewer masters with parameter characteristics exceeding the performance of the appropriate mission material and containing the proper scale factor, it will be necessary to obtain flight material, in the manner described in the above report, and subsequently photograph it in a modified copy camera.

This report gives consideration to the factors involved in acquiring the desired flight material.

II. Flight Program Specifications

GEMS or Pseudo GEMS Viewer masters with specific scene content are desirable. It will be necessary to designate, in conjunction with the customer, the exact type scene content required and the geographical location of the imagery. In addition, a flight plan must be devised for acquiring this imagery.

Selecting the desired scene content and defining the scene area locations can be accomplished by reviewing photographic archival records of such areas as airfields, harbors, industrial sites, and city and residential sites. The flight program, as related to the acquisition of the material, should consist of specifying the flight co-ordinates and pass direction, vehicle speed and altitude, and the time of day and desirable atmospheric conditions.

III. Camera System Considerations

The various simulation aspects and the DuPont SR-102 film characteristics were used to determine the camera system and vehicle operational parameters.

In order to adequately simulate the parameters of film imagery contrast and scene exposure range, the flight material should be acquired at an altitude of approximately 6,000 to 8,000 feet. Simulation of the appropriate film scale factor dictates that the focal length of the camera system should be approximately 6 inches. If the size of the GEMS is to be roughly 0.5 inches square, the system should be capable of handling film which is 9 to 9.5 inches wide.

A camera system with good resolution capabilities is desirable. The flight material must yield imagery with a minimum resolution range of 50 lines per millimeter. The SR-102 film is capable of 130 lines per millimeter or better. The film format resolution should be as uniform as possible, and the imagery essentially free of image-motion. The system must be performable at an aerial exposure index of 0.8 with a film thickness of 4.6 mils.

IV. Film Processing Considerations

The reversal processing of the flight material can be done in a two stage series arrangement of Morse type EH-7A machines. However, a brief co-operative investigation should be undertaken with the customer to determine if a more suitable processing machine is available for use.

The processing procedures and times have been established for the SR-102 film type in the laboratory. Since the film processing characteristics vary as a function of the type processing machine, it will be necessary to re-establish the processing procedure on the machine to be employed.